

Attorney's Docket No.: '977-227002 / US3559D1

REMARKS

Reconsideration and reexamination of this application in light of the above-amendments and the following remarks is respectfully requested. Claims 1-19 are pending in this application. By way of this response, claims 1-7 have been amended and claims 8-19 have been added. Basis for the amendments can be found throughout the specification, claims, and drawings as originally filed. No new matter has been added. Reconsideration of the rejections set forth in the outstanding Office Action is respectfully requested in view of the preceding amended claims and the following remarks.

I. Objection To The DrawingsFigures 3F-3G.

Figures 3F-3G stand objected to under 37 C.F.R. §1.84(p)(4) because of the use of reference characters 315 and 311 in Figures 3F-3G. Applicant requests approval of an amendment of Figure 3F to make minor corrections. The Figure 3F submitted with the original filing does not correctly show the form of the silicon oxide film 315. Specifically, the silicon oxide film 315 was incorrectly shown to only extend over the island region 301. The corrected Figure 3F shows the silicon oxide film 315 extending beyond the island region 301. Basis for the

Attorney's Docket No.: 977-227002 / US3559D1

correction can be found in **Figure 3F** of the priority document, Japanese Application 9-53843, filed February 20, 1997. A copy of the redlined **Figure 3F** as well as a copy of the substitute **Figure 3F** is included herewith. No new matter has been added. In view of the foregoing, Applicant respectfully requests withdrawal of the objection to **Figures 3F-3G**.

Figures 5A-5C.

Figures 5A-5C stand objected to as failing to have a legend such as "Prior Art". Applicant asserts that each of **Figures 5A-5C** as filed include the legend "Prior Art" at the lower right of the applicable figure. In view of the foregoing, Applicant respectfully requests withdrawal of the objection to **Figures 5A-5C**.

II. Amendment to the Title

The title has been amended herein to better describe the invention. Applicant respectfully requests entry and approval of the new title.

III. Rejection based on Double Patenting

Claims 1, 4, and 6 stand rejected under the judicially created doctrine of double patenting over Claims 6, 12, and 17 of co-owned U.S. Patent No. 6,093,587 in view of Makita et al.

IV. Claim Objections

Claims 1-3 stand objected to for informalities. Applicant has amended Claim 1 in an attempt to overcome the objection. In view of the foregoing, Applicant respectfully requests the withdrawal of the objection to Claims 1-3.

V. Rejection Under 35 U.S.C. § 112, First Paragraph

Claims 1-7 stand rejected under 35 U.S.C. §112, first paragraph, as containing subject matter (specifically, "applying water repellence ...") which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

Applicant respectfully traverses the rejection. Applying water repellence is supported throughout the specification. Examples include: "the selective holding of said metal elements is conducted by using water repellency of the silicon film to said solution" (page 3 lines 22-25), controlling the "hydrophobic property ... to positionally control an introduced amount of metal elements" (page 4, lines 1-4), "an oxide film is formed on a part of the amorphous silicon film with the result that the wettability of that region is improved" (page 4, lines 5-9), "a solution (for example, nickel acetate solution) containing nickel elements therein which exhibits a water

Attorney's Docket No.: 977-227002 / US3559D1

repellency (hydrophobic property) is coated on an entire surface of the amorphous silicon film 203" (page 5, lines 5-7), "in a state shown in Fig. 2B, the solution as coated is repelled by the surface of the amorphous silicon film" (page 5, lines 14-15), "[f]or the above reasons, it is desirable that stains on the surface of the amorphous silicon film and a natural oxide film are removed by a hydrofluoric acid processing or the like before coating the solution containing the metal elements therein on the amorphous silicon film to thereby form a silicon film surface having a sufficient water repellency (page 6, lines 26-30). There are numerous other examples throughout the specification that provide support for the phrase "applying water repellence". In view of the foregoing, Applicant respectfully requests the withdrawal of the rejection of Claims 1-7 under 35 U.S.C. §112, first paragraph.

VI. Rejection Under 35 U.S.C. §112, Second Paragraph

Claims 1-7 stand rejected under U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention. Applicant respectfully traverses the rejection. The comments presented in response to the 35 U.S.C. §112, First Paragraph rejection apply here as well. In addition, the exact phrase of Claim 1 that is rejected here, was

Attorney's Docket No.: 977-227002 / US3559D1

used in Claims 1, 8, and 14 of issued US Patent 6,093,587. In light of the above comments, Applicant believes that Claims 1-7 overcome the rejections and respectfully requests withdrawal of the same.

VII. Conclusion

Applicants have carefully reviewed each of the objections and rejections set forth, and have amended the claims as indicated herein to individually address the rejections and objections and to place all claims in condition for allowance. In view of the above, Applicants submit that the specification and drawings are in order and that all the claims are now in condition for allowance. Such action is respectfully requested. Enclosed is an \$84 check for excess claim fees. Please apply any other charges or credits to Deposit Account No. 06-1050. If the Examiner would like to discuss the matter further, the undersigned may be contacted at (858) 678-5070.

Attorney's Docket No.: 977-227002 / US3559D1

Attached is a marked-up version of the changes being made by the current amendment.

Respectfully submitted,

Date: December 27, 2001

Joseph L. Stevenson
Joseph L. Stevenson
Reg. No. 43,163

Fish & Richardson P.C.
PTO Customer No. 20985
4350 La Jolla Village Drive, Suite 500
San Diego, California 92122
Telephone: (858) 678-5070
Facsimile: (858) 678-5099

10153080.doc

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the specification:

Page 1, the title;

METHOD OF MANUFACTURING [A SEMICONDUCTOR] AN EL DISPLAY DEVICE

Page 11, line 6;

In this process, porous anodic oxide films 419 are selectively formed on a side surface of the aluminum pattern because a high-adhesive resist mask 322 exists on the upper portion. (Fig. [4] 4I)

Page 11, line 24;

In this way, a state shown in Fig. [4J] 4I is obtained. Then, using a mixture acid in which acetic acid, nitric acid and phosphoric acid are mixed together, the porous anodic oxide files 419 are removed.

Page 11, line 27;

After the state shown in Fig. [4J] 4I is obtained, impurity ions are implanted. In this embodiment, in order to manufacture an n-channel thin film transistor, P (phosphorus) ions are implanted through the plasma doping method.

Attorney's Docket No.: 977-227002 / US3559D1

In the claims:

Claim 1 has been amended as follows:

1. (Amended) A method of manufacturing an EL display device,
said method comprising the steps of:

forming an amorphous semiconductor film comprising
 $\text{Si}_x\text{Ge}_{1-x}$ ($0 < x < 1$) on an insulating surface;

removing a portion of the amorphous semiconductor film
to form a metal element addition region, where a metal element
is capable of promoting crystallization of the amorphous
semiconductor film;

selectively introducing the metal element in contact
with the metal element addition region;

heating the amorphous semiconductor film so that
crystals grow in parallel to the insulating surface from the
metal element addition region,

wherein [the selectively introducing] the metal
element is selectively [comprises] introduced by coating a
solution containing the metal element therein and applying water
repellence of the semiconductor film to the solution.

-- 8. (New) A method according to claim 1, further
comprising:

irradiating the crystallized semiconductor film with a
laser light.

9. (New) A method according to claim 1, further comprising:
heating the crystallized semiconductor film in an
atmosphere comprising a halogen element.

10. (New) A method according to claim 4, further
comprising:
irradiating the crystallized semiconductor film with a
laser light.

11. (New) A method according to claim 4, further
comprising:
heating the crystallized semiconductor film in an
atmosphere comprising a halogen element.

12. (New) A method according to claim 6, further
comprising:
irradiating the crystallized semiconductor film with a
laser light.

13. (New) A method according to claim 6, further
comprising:
heating the crystallized semiconductor film in an
atmosphere comprising a halogen element.

14. (New) A method of manufacturing an EL display device, said method comprising the steps of:

forming an amorphous semiconductor film comprising $\text{Si}_x\text{Ge}_{1-x}$ ($0 < x < 1$) on an insulating surface;

selectively introducing a metal element into a first portion of the amorphous semiconductor film while the metal element is not introduced into a second portion of the amorphous semiconductor film, said metal element being capable of promoting crystallization of the amorphous semiconductor film;

heating the amorphous semiconductor film to form a crystalline semiconductor film;

wherein a crystal growth vertically proceeds in the first portion while the crystal growth laterally proceeds from the first portion in the second portion;

patterning the crystalline semiconductor film to form a first crystalline semiconductor island and a second crystalline semiconductor island using the first and second portions, respectively;

forming a first gate electrode and a second gate electrode adjacent to the first and second crystalline semiconductor islands with a gate insulating film, respectively;

introducing a first impurity into the first crystalline semiconductor island to form a first source region,

Attorney's Docket No.: 977-227002 / US3559D1

a first drain region and a first channel region of a first thin film transistor;

introducing a second impurity into the second crystalline semiconductor island to form a second source region, a second drain region and a second channel region of a second thin film transistor,

wherein the metal element is selectively introduced into the first portion of the amorphous semiconductor film by coating a solution containing the metal element therein and applying water repellency of the semiconductor film to the solution.

15.(New) A method according to claim 14,

wherein the metal element is at least one selected from the group consisting of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, Pt, Cu and Au.

16.(New) A method according to claim 14, further comprising:

irradiating the crystalline semiconductor film with a laser light.

17.(New) A method according to claim 14, further comprising:

heating the crystalline semiconductor film in an atmosphere comprising a halogen element.

18. (New) A method according to claim 14, wherein the first thin film transistor is a p-type thin film transistor while the second thin film transistor is an n-type thin film transistor.

19. (New) A method according to claim 14, further comprising:

forming an insulating film over the first and second crystalline semiconductor islands, the first and second gate electrodes and the gate insulating film;

forming at least an electrode connected to one selected from the group consisting of the first source region, the first drain region, the second source region and the second drain region. --